Amendment to Specification

Please amend the paragraph on page 1, lines 9-10 as follows:

The present application is a division of U.S. patent application no. 09/713,137 filed November 14, 2000 (now U.S. patent no. 6,749,764), incorporated herein by reference.

Please amend the paragraph running from page 1, line 30 to page 2, line 6 as follows:

Fig. 1 shows a prior art plasma processing system 110 described in U.S. Patent Application 08/975,403 (now U.S. patent no. 6,139,678) and PCT application WO 99/26796 which are incorporated herein by reference. Plasma source 114 generates a plasma jet 120 schematically shown by an arrow. Carrousel 124 has five wafer holders 130 (or some other number of wafer holders) each of which holds a semiconductor wafer. The wafers, not shown in Fig. 1, are positioned beneath the holders 130. Plasma jet 120 flows upwards and impinges on the wafers' bottom surfaces. Holders 130 may be non-contact vortex holders (these holders do not contact the wafers' top surface), or they may be contact holders that hold the wafers by vacuum or by electrostatic or mechanical means.

Please amend the paragraph on page 4, lines 1-7 as follows:

To improve the processing uniformity, one can change the direction of the W2 rotation during processing. This solution is described in U.S. Patent Application 09/315,122 (now U.S. patent no. 6,287,976) filed May 19, 1999 by O. Siniaguine et al. and incorporated herein by reference. Disadvantageously, changing the direction of the W2 rotation tends to increase the processing time. It is therefore desirable not to change the direction of the W2 rotation, or at least to reduce the number of times that the direction of the W2 rotation is changed.

Please amend the paragraph on page 7, lines 5-16 as follows:

Fig. 5 illustrates a plasma processing system in which each wafer 134 rotates around axis 130X of respective wafer holder 130. Only one wafer is shown, though any number of

wafers may be present. Wafer holders 130 are contact holders (for example, vacuum, electrostatic or mechanical chucks). Each wafer holder 130 is rotated by a respective angle drive 502. Drive 502 has a body 502B rigidly attached to arm 140A of drive 140. A motor (not shown) inside the body ~~150B~~ 502B rotates a spindle 502S rigidly attached to holder 130. As a result, the holder 130 rotates around some vertical axis 130X defined by drive 502. The angular velocity is shown as W3. The bottom surface of holder 130 may have a circular portion designed to receive the wafer 134. In some embodiments, the axis 130X passes through the center of that portion. Axis 130X may pass through the center of mass of the wafer or the wafer holder or both.

Please amend the paragraph running from page 9, line 28 to page 10, line 9 as follows:

In Fig. 6, wafer holders 130 are non-contact vortex or Bernoulli holders. In a vortex holder, one or more gas vortices are emitted from the holder's body 130B towards the wafer. A vacuum near the center of each vortex holds the wafer adjacent to the holder. Escaping gas also prevents the wafer from contacting the body of the holder. Suitable holders are described in the following U.S. Patent Applications, incorporated herein by reference: Application no. 09/457,042, filed December 7, 1999, entitled "Brim And Gas Escape For Non-Contact Wafer Holder" (now U.S. patent no. 6,203,661); Application 09/456,135, filed December 7, 1999, entitled "Non-Contact Workpiece Holder" (now U.S. patent no. 6,402,843); Application 09/038,642, filed March 10, 1998, entitled "Holders Suitable To Hold Articles During Processing, And Article Processing Methods" (now U.S. patent no. 6,168,697). See also PCT application published as number WO 99/46805 on September 16, 1999, incorporated herein by reference. Other vortex holders, and non-contact Bernoulli holders, can also be used.

Please amend the paragraph running from page 10, line 28 to page 11, line 9 as follows:

In Fig. 7, the W3 rotation of the wafer holder 130 is actuated by drive 140. The drive's motor (not shown) rotates a spindle ~~140X~~ 140S rigidly attached to arm 140A, as in

Figs. 5 and 6. The drive's cylindrical body 140B does not rotate around axis 140X, and is stationary relative to arm 150A. A link 702, for example a belt or a chain, runs around the cylindrical surface of body 140B and also runs around a spindle 130S rigidly attached to wafer holder 130. Spindle 130S passes through a slot in arm 140A. Spindle 130X can rotate freely around its axis 130X. The rotation around the axis 140X causes the spindle 130S to drive the link 702 around the body 140B. The body 140B rolls along the inner surface of link 702 without slippage (although some slippage is admissible). This causes the link 702 to travel around the spindle 130S. The link 702 travels around the spindle 130S without slippage (although some slippage is admissible), causing the spindle to rotate.

Please amend the paragraph on page 14, lines 3-18 as follows:

Fig. [[17]] 16 shows a detailed view of one embodiment of drive 502 (Fig. 11). The drive is actuated by an embodiment of air motor. Shown are a vane impeller 638, a blower 640 and a flow duct 642. Pin 602 is attached concentrically to vane impeller 638. Air from a pressure source is introduced into blower 640 and is emitted through a nozzle (not shown) in blower 640 against one side of van impeller 638. Flow duct 642 guides the air around vane impeller 638, causing van impeller 638 and pin 602 to spin at an angular velocity W4. Since the edge of wafer 134 (Fig. 11) is in contact with pins 602, the wafer 134 also rotates at the angular velocity W3, the relationship between W3 and W4 being governed by the following equation:

$$W4 = W3\left(\frac{Dw}{D_{Pin}}\right)$$

where Dw and D_{Pin} are the diameters of wafer 134 and pin 602, respectively. In one embodiment the air supplied to blowers 640 is from the same pressure source (e.g., 20 psi) that is used to supply the vortex chucks that clamp wafer 134 to holder 130. The nozzles in blowers 640 have an opening 0.020mm in diameter.

Please amend the paragraph running from page 14, line 29 to page 15, line 2 as follows:

Fig. 19 shows a detail of an embodiment of Fig. 6. Pins 602 are rigidly attached to a brim 650 that rotates around wafer holder body 130B. The brim helps obtaining good processing uniformity at the wafer edges. See U.S. patent application 09/457,042 (now U.S. patent no. 6,203,661), mentioned above, incorporated herein by reference. Another possibility is that the pins 602 could be rotated by a propeller (not shown) driven by the air flow created as arms 140A rotate around axis 140X.